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GENERAL
BACKGROUND INFORMATION
ON
LEEWARD
AND
WINDWARD ISLANDS



CANADA
DEPARTMENT OF TRANSPORT
CONSTRUCTION ENGINEERING AND ARCHITECTURAL BRANCH

MARCH 1967

*This volume was donated to
the University of Toronto by
Derek J. W. Little
President, Municipal Planning
Consultants Co. Ltd.*

C A N A D A

DEPARTMENT OF TRANSPORT

AIR SERVICES

CONSTRUCTION ENGINEERING AND ARCHITECTURAL BRANCH

AIRPORT DEVELOPMENT

CED-7-139

GENERAL BACKGROUND INFORMATION

ON THE

LEEWARD AND WINDWARD ISLANDS



MARCH 1967

WEST INDIES

LEEWARD AND WINDWARD ISLANDS

78 MILES TO THE INCH



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ST. LUCIA

1. GEOGRAPHY

St. Lucia is a volcanic Caribbean island, situated in the windward islands of the Lesser antilles with the island of St. Vincent immediately to the south and the island of Martinique to the north.

The island is approximately 27 miles long and its greatest breadth is 14 miles. The total area is 238 square miles.

Tide variations relative to mean sea level are in the order of 9 inches.

2. CLIMATE

The climate can be divided into two seasons: the dry season from December to May and the wet season during the remainder of the year.

The temperature ranges from a low of 64°F to a high of 93°F with moderate temperatures in the order of 70°F to 80°F in the dry season.

Rainfall varies from 60 to 70 inches per year in the north and south ends of the islands, to 100 to 145 inches in the interior reaching a maximum of 250 inches per year on occasion. Most precipitation is in the form of gentle rain but occasionally heavy cloud burst occur with sometimes disastrous results.

3. SOILS AND GEOLOGY

The island of St. Lucia consists of volcanic debris piled up in the Tertiary period and carved by water to its present form. The deposition consists mainly of basalts and crumbling tuffs which have weathered to form rich black soils of considerable depth.

The island generally can be described as mountainous with fertile well cultivated valleys.

4. ECONOMY

(a) Population

The population at the 1960 census was 88,108 of whom 32,000 lived in Castries. In 1963 the population was reported to be 99,084 with

a birth rate of 40.2 per 1,000 and a death rate of 10.8 per 1,000. Recent statistics indicate the birth rate and death rate are slowly declining. The high birth rate is offset by a fairly large migration from the island. This migration may decrease as a result of changes in immigration policy.

English is in general use but most of the people speak French patois also.

(b) Conditions Influencing the Economy of the Island

A large proportion of the land is Government owned and no land tax is assessed on property which is privately owned. 24,800 acres are Government owned out of a total of 152,000 acres with a further 56,000 acres under cultivation.

The economy is heavily dependent on exports of agricultural produce. Due to the mainly mountainous terrain of the island, the cost of crops is relatively high, thus competition in the world market is difficult.

Export crops consist of bananas, coconuts and cocoa. Favourable tariff arrangements with the United Kingdom, bananas account for approximately 70 percent of the gross national product. The U.K. banana market, however, has reached the saturation point and prices are now dropping. If the United Kingdom enters the Common Market, the island may lose the tariff protection it now enjoys. Should this happen the island will have to compete on the world market, therefore, continued expansion may be restricted.

The following table indicates crop production during the past few years:

Copra	1955 - 1964	3,000 tons to 4,500 tons
Cocoa	1958 - 1963	214 lbs. to 325 lbs.
Bananas	1960 - 1965	28,400 tons to 80,500 tons.

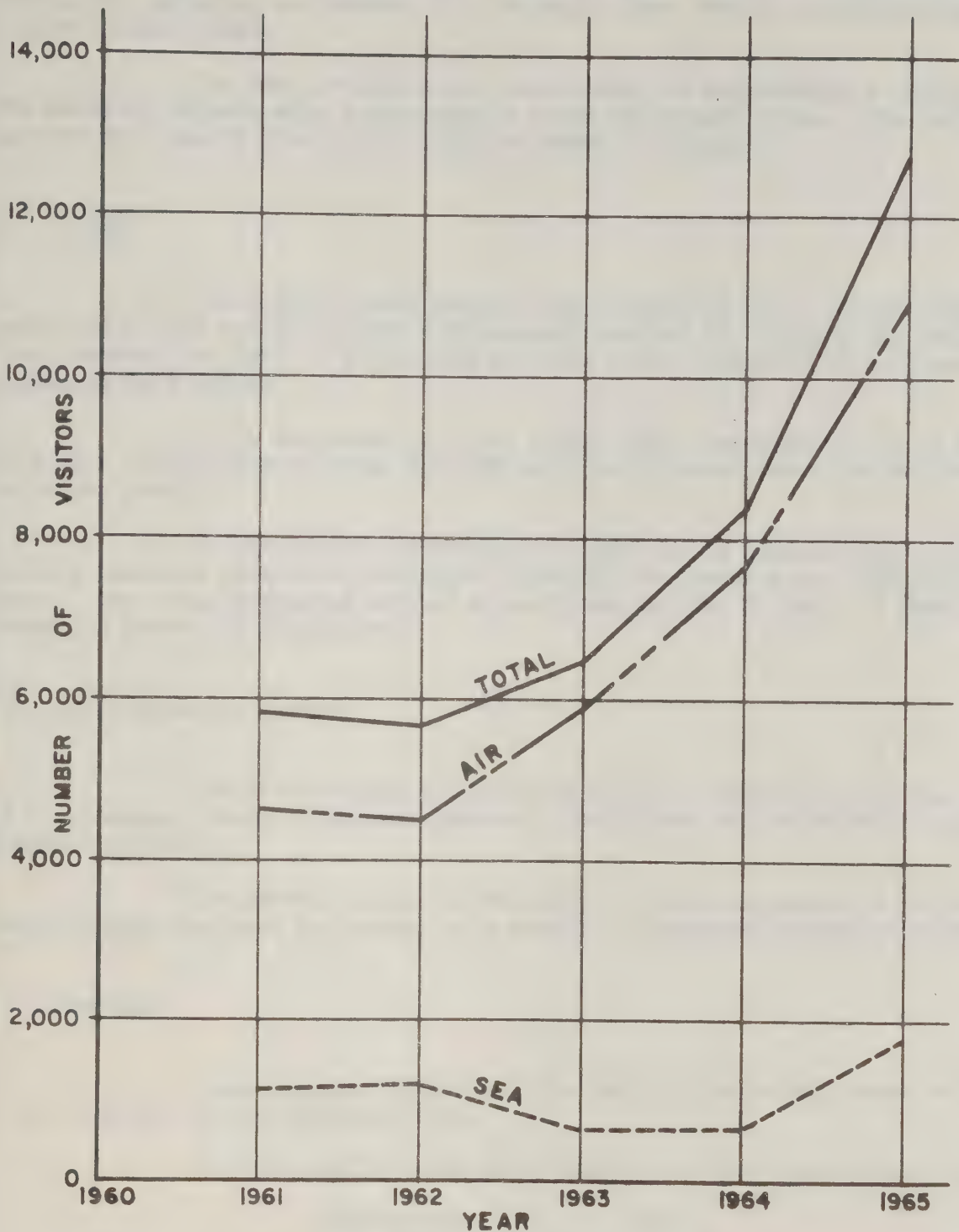
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Increases in production, however, are offset by an increase in the domestic consumption. This leaves the economy in a static condition.

The only industry with good growth potential is tourism. The tourist industry has experienced a steady growth during the past five years as shown in Figure 1. It is estimated that visitors to the island during 1965 spent \$2,500,000.

The majority of hotels are located in the north half of the island within a radius of seven miles from Castries and Vigie Airport. The southern half of the island near Beane Field is not as well developed as the Castries area. A good connecting highway would be an asset.

ST. LUCIA



NUMBER OF VISITORS BY SEA, AIR AND TOTAL NUMBER
VS
TIME

There are sixteen major factories and plantations on the island, producing sugar, lime, bay rum, edible oil, aerated water, soap, furniture, brick, ice, printing and cotton. In addition there are two distilleries and a rice hulling plant.

For the past few years the island has experienced a trade deficit. The value of imports were approximately twice the export value. The value of imports and exports from 1938 - 1964 are shown in Figure 2.

(c) Budget

The latest actual budget figures are for 1965. Total government revenue for 1965 was \$5,580,000 with expenditures of \$6,700,000; the estimated total revenue for 1967 is \$7,440,000 with the total estimated expenditures balancing this figure.

It is estimated that the Public Works operational budget for 1967 will be \$159,500 of which \$11,700 is Colonial Development and Welfare and other grants.

In the capital estimates for 1967, it is estimated that \$153,500 will be spent on water and sanitation, \$307,000 on airports and \$428,000 on roads. The total estimated capital expenditure for the Ministry of Communications, Works and Labour is \$1,030,000.

(d) Gross Domestic Product

The Gross Domestic Product (G.D.P.) at factor cost is the sum of all incomes, wages, salaries, interest, profit and rent attributable to economic activity.

The growth of G.D.P. from 1960 - 1964 is represented in Figure 3. Recent growth has been influenced as a result of increased banana production.

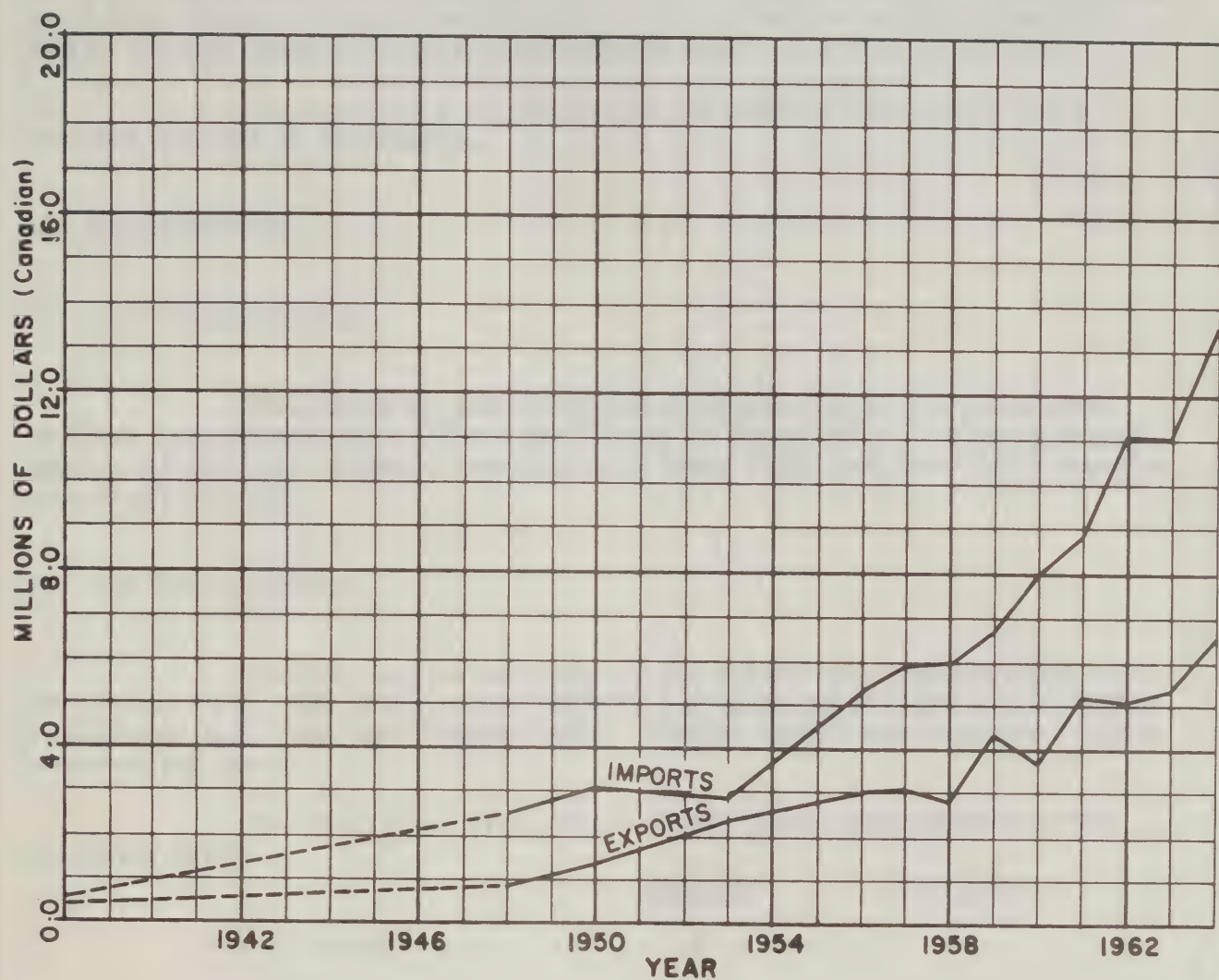
(e) Taxation

A considerable portion of the land is Government owned and there is no land tax on the remaining land.

For the year 1964 the distribution of tax revenue was as follows:

Import Duty	46.1 %
Other Customs Duties	12.0 %
Income Tax	16.8 %
Other Inland Revenue	5.3 %
Other True Revenue	14.4 %
Other (Aid Schemes)	5.4 %
TOTAL	100.0 %

ST. LUCIA



VALUE OF IMPORTS AND EXPORTS
VS
TIME

(f) Currency and Banking

The Windward Islands are within the Sterling Area and money can be transferred without restrictions through the normal banking services. The currency is that of the British Caribbean (Eastern Group). The unit being the B.W.I. dollar divided into 100 cents. 1 U.S. dollar equals \$1.68 B.W.I. dollar and one Canadian dollar approximately equals 1.5 B.W.I. dollar.

The Royal Bank of Canada and the Bank of Nova Scotia have branches located on the island.

5. TRANSPORTATION

(a) Air Transportation

The island is served by two airports, one at Castries known as Vigie Airport and one at Vieux Fort known as Beane Field. A twice weekly service by B727 jet aircraft operates into Beane Field and Avro 748's operate into Vigie Airport.

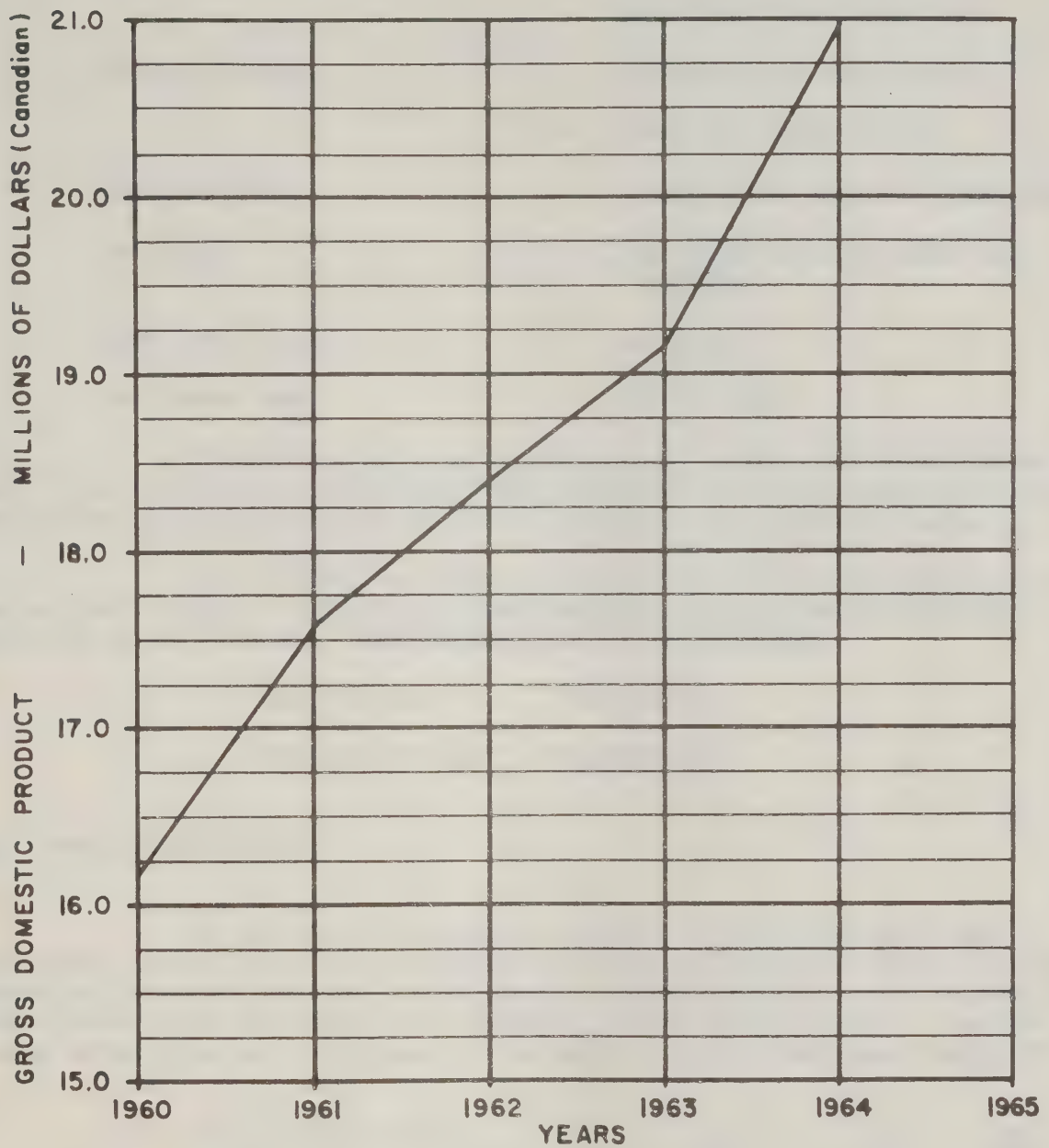
(b) Sea Transportation

The two deep water ports on the island are Port Castries and Port Vieux Fort. The depth at the harbour entrances is 36 feet and 30 feet at Castries and Vieux Fort respectively. Similar depths are reported for the manoeuvring areas.

The facilities available at these ports are recorded in the following table:

	<u>Castries</u>	<u>Vieux Fort</u>
No. of Berths	4	1
No. of Transit Sheds	4	-
Total Transit Shed Area	86,000 sq. ft.	-
Total Storage Area for Loading and Unloading	215,000 sq. ft.	-
Loading and Unloading Equipment Available	Nil	Nil
Wharf construction	- North wharf steel - concrete construction sheet piles timber piles and fendering	
	- West wharf king piles and concrete slabs.	

ST. LUCIA



GROSS DOMESTIC PRODUCT
VS
TIME

FIG. 3

Port Charges and Regulations

Harbour and Tonnage Dues	-	\$2.70 - \$13.40 Port Dues \$0.80 per ton Cargo Dues
Dockage Charges	-	Pilotage not compulsory Boat and lines \$12.80
Wharfage Dues	-	Included in Port and Cargo Dues
Demurrage	-	One half cent per cubic ton per day
Free Time Period	-	24 Hours
Admittance Fee	-	\$16 to \$24.

Stevedoring is done by the vessels agents. It is estimated that 250 longshoremen are available for unlimited port requirements. Their productivity is estimated to be 15 - 25 tons per hatch per man hour.

During 1966, 64 ships called at Vieux Fort. The total gross tonnage was 136,523. Similarly at Castries 409 ships called in 1966 with 1,847,847 gross tonnage. 1964 figures for St. Lucia show:

Cargo Loaded	66,000 tons
Cargo Discharged	79,000 tons.

(c) Road Transportation

The growth of the number of motor vehicles can give some indication of the growth of prosperity although it may also reflect to some extent an increased availability of credit. Some increase in the number of taxis in St. Lucia may reflect an increase in the tourist trade. The following table gives an indication of the number of motor vehicles registered on the island:

Motor Vehicles Registered:	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Private Motor Cars	906	1145	1359	1567
Taxis	241	200	219	253
Buses	165	169	207	232
Trucks	166	192	231	240
Trailers	18	21	23	26
Tractors	36	33	24	40
Hearses	3	3	3	4
Jeeps	12	14	16	24
Motorcycles	112	152	171	191
Fire Appliances	10	8	9	9
Other Classes	297	353	361	408
TOTAL	1,966	2,290	2,635	2,994

In 1965 the total mileage of Class I road was 146 miles and Class II road 137 miles. Total mileage of all roads was 394. Main highways are administered by the Public Works Department and local roads come under local municipal bodies.

The design vehicle reportedly used for designing highway pavement structures is a 14,000 lb. axle load. These structures experience considerable overloading.

(d) Rail Transportation

There is no public railway on the island.

(e) Communications

Post Offices are located in all towns and villages. Cable and Wireless (W. Indies Ltd.) provide communications to all parts of the world via a cable system and a telegraph station. Radio-telephone services are operated to Canada among other places. There are eleven telephone exchanges in various towns and villages.

One newspaper, the Voice of St. Lucia is published in Castries.

6. LABOUR

There is reportedly a shortage of technical, skilled and semi-skilled workers on the island. Such help should be brought in from outside for any major construction project. The following table indicates the prevailing weekly wage rates on the island:

WAGE RATE - P.W.D.

DAILY PAID WORKERS PER 40 HOUR WEEK

CRAFT	APPRENTICES		SEMI-SKILLED		TRADESMEN		FOREMEN	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A								
ELECTRICIANS								
WELDERS								
TURNERS	20	22	31	36	45	55	70	84
MECH. EQUIPMENT OPERATORS								
B								
JOINERS	20	22	31	36	38	49	59	71
MECHANICS								

CRAFT	APPRENTICES		SEMI-SKILLED		TRADESMEN		FOREMEN	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
C								
MASONS								
CARPENTERS								
PLUMBERS								
PAINTERS								
DRILLERS	20	22	31	31	36	43	53	65
SMITHS								
D								
CHAUFFEURS					38	47		
E								
LABOURERS								
MALE	22		28	36				
FEMALE	19							
F								
WATCHMEN	17				Rate for 12 hour day/week			
G								
GANGERS	<u>MIN.</u> 39	<u>MAX.</u> 51						

Add 10% for employees with 10 years service and over.

The Government of St. Lucia has a contract with the St. Lucia Workers Union. This contract covers working conditions, working hours, rates of pay, leave, settlement of disputes, etc.

The longshoremen are members of the Seamen and Waterfront Workers Union.

No information is available concerning Workmen's Compensation or Unemployment Insurance.

7. LOCAL LAWS AND REGULATIONS

(a) No information on labour laws could be obtained.

(b) No information concerning expropriation laws could be obtained.

(c) Health Regulations and Services

An international certificate against Small Pox is required and against Cholera and Yellow Fever if travelling from infested local areas.

Medical services are administered by the Department of Health. Four hospitals are located in the island together with health centres in all districts throughout the island. Malaria is practically unknown. A number of doctors and dentists practice privately. The following statistics are reported for 1964:

Doctors Registered	17
Hospital Beds	437
Population/Doctor Ratio	5,441
Population/Hospital Bed Ratio	212.

(d) Immigration Regulations

All intending residents must have valid passports. Aliens (other than nationals of the visa abolition agreement countries and of the U.S.A. and Canada not staying more than six months), need visas.

A residential permit must be obtained from the Chief Immigration Officer for an indefinite stay in the island.

Visitors permits are issued, on arrival, for three months; these permits are extendable to three years at the discretion of the Chief Immigration Officer.

Immigration Officers can ask for a cash deposit equal to the cost of a passage to country of origin.

8. CONSTRUCTION EQUIPMENT

Existing very limited amount of heavy construction equipment on the island is owned by the government or by estates. This equipment is required for local programmes and would be released for emergency conditions only.

No storage facilities for construction equipment are available. Only very limited facilities for repair of heavy construction equipment are available.

9. CONSTRUCTION MATERIALS AND SERVICES

The following costs indicate the selling prices of various construction commodities:

Gas per tanker truck	-	47¢ per gallon
Gas per 45 gallon drum	-	47¢ - 50¢ per gallon
Diesel fuel bulk price	-	31¢ per gallon
Diesel fuel per 45 gallon drum	-	31¢ - 34¢ per gallon
Bitumen	-	21¢ per gallon

Electric power is available in Castries and Vieux Fort as well as other areas. St. Lucia Electric Services Ltd., is responsible for the generation and distribution of electricity in the Castries, Saufriere and Vieux Fort areas.

The Castries area is served by 230V, 50 cycle, single phase, A.C. which is available for domestic use. High voltage supplies are available at 2200V and 6600V.

In the Vieux Fort area electricity is generated from three diesel generators - one unit producing 300 K.W. at 400V and two 150 K.W. units at 4160V. The line voltage is 4,160V. This in turn is reduced for consumption to 440V, 50 cycle, 3 phase and 220V, 50 cycle, single phase. There is a limited surplus available.

The cost of electricity is as follows:

First 10 K.W.H.	-	17¢ per K.W.H.
Next 50 K.W.H.	-	8¢ per K.W.H.
Remainder	-	5¢ per K.W.H.

It is reported the above costs will be adjusted downward in January, 1967.

ST. VINCENT

1. GEOGRAPHY

St. Vincent is situated some 100 miles west of Barbados. The island is 18 miles long and 11 miles broad, having a total area of 133 square miles.

2. CLIMATE

The climate is tropical. About 70% of the rainfall occurs between May and November and ranges from 150 inches per year in the central mountains to 60 inches per year on the southeast coast. The drier season is from December to April. Average annual rainfall over the entire island is about 88 inches.

From January to June the northeast trade winds predominate and temperatures are equitable, ranging from 88 to 66 degrees F. St. Vincent lies just within the hurricane belt but seldom suffers any damage.

Some climatic statistics for the period 1960 - 1962 are:

Average Yearly Rainfall	-	86 inches
Mean Highest Barometric Pressure	-	30.0 inches
Mean Lowest Barometric Pressure	-	29.9 inches
Mean monthly Temperature	-	82.6 degrees F
Mean Relative Humidity	-	78.1 percent.

Winds are almost entirely easterly and seldom exceed 13 knots except on the windward side of St. Vincent.

3. SOILS AND GEOLOGY

St. Vincent is of volcanic origin and thus shares the geological history of St. Lucia. A range of volcanic mountains stretches the entire length of the island from Soufriere (4,048 ft.) with its crater lake in the north to Mount St. Andrew in the south. The soils are deep, light and porous.

The Volcano, Soufriere last erupted in 1902.

4. ECONOMY

(a) Population

St. Vincent has a white population of between 2 and 5%, most of these being of Portuguese descent. The 1964 population was about 87,000 an increase of 2% over 1963.

(b) Conditions Influencing the Economy of the Island

The chief agricultural products of St. Vincent are arrowroot, bananas and coconuts. Cotton is also grown as a secondary product. Arrowroot grows extremely well on the well-watered and fertile slopes of St. Vincent and since 1962 arrowroot has become an important crop, and the island enjoys a virtual monopoly in world markets.

Since 1960 the banana industry has become static due to the absence of expanding markets and in 1962 the sugar factory burned down. The arrowroot industry has been forced to restrict production to 20,000 barrels per year in an effort to dispose of some 60,000 barrels of starch which have accumulated. Cotton also decreased in production from over 1/4 million pounds in 1960 to less than 100,000 pounds in 1966.

The prospects for development of a tourist industry, however, seems good. At present there are 10 hotels on St. Vincent and Bequia with a total of about 260 beds. The number of visitors in 1966 is estimated at between 7 and 8 thousand and in 1965 tourist expenditures amounted to \$1.0 million, about 6% of the G.D.P.

St. Vincent imports chiefly food and manufactured goods, the values of these imports far outweighing the exports of agricultural products. In 1964 the imbalance was about \$6½ million.

1964 Total Exports	-	\$4,350,000
		(Bananas 52%, Arrowroot 19%)
1964 Total Imports	-	\$10,700,000
		(Food 27.5%).

(c) Budget

1964 Government Operational Expenditures	-	\$ 3,780,000
1964 Government Revenue	-	\$ 3,960,000.

Of the government operational expenditures, the breakdown was as follows:

Public Works	-	13.9 %
Health and Social Services	-	15.7 %
Education	-	20.6 %
Agriculture	-	6.7 %
Others	-	43.1 %

Of the total government revenue, 79.7% was from local sources and 20.1% from aid sources. Aid sources went to finance capital expenditures.

(d) Gross Domestic Product

In 1964 the G.D.P. at factor cost was \$16,400,000 which was \$282 per capita. In 1963 the figures were \$16,200,000 and \$285 respectively indicating a slight decrease in real economic activity (\$285 to \$282).

(e) Taxation

In 1962 the tax breakdown was as follows:

Entertainment Tax	-	\$ 10,000
Income Tax	-	\$ 550,000
Land and House Tax	-	\$ 48,000
Purchase Tax	-	\$ 20,000
TOTAL		\$ 628,000.

Income tax is levied upon the chargeable income of every person other than a company and on non-residents deriving income from the island. Double taxation relief applies to some countries including Canada.

Local revenue in 1964 was derived as follows:

Import Duty	-	46.5 %
Other Customs Duties	-	12.9 %
Income Tax	-	15.9 %
Other Inland Revenue	-	7.8 %
Other True Revenue	-	12.4 %
Other Revenue	-	4.5 %
TOTAL		\$ 3,170,000.

(f) Currency and Banking

These are the same as for St. Lucia.

5. TRANSPORTATION

(a) Air Transportation

Arnos-Vale Airport is located at the south-western end of the island, $2\frac{1}{2}$ miles from the capital Kingstown. The island is linked to Trinidad and Barbados with daily scheduled service provided by BWIA using Avro 748 aircraft and LIAT link the island to Antigua, Dominica and St. Lucia also using Avro 748 aircraft. In all, there are 24 weekly aircraft landings (1,250 per year). In 1964, 883 aircraft landings of all types were recorded of which 675 were scheduled flights. Thus in 3 years the air traffic has almost doubled.

(b) Sea Transportation

The harbour at Kingston, the principle port, is served by scheduled cargo and passenger services as well as by unscheduled service provided by motor vessels and schooners which call when cargo is offered. A weekly cargo and passenger service is provided by two ships of the West Indies Shipping Service travelling alternatively via the islands as far north as Jamaica and south to Trinidad. Nine other companies provide monthly cargo and passenger service.

In 1964, Kingston recorded 37 oil tankers and 316 motor vessels of 500 gross tons, although none over this weight were recorded. 766 vessels in all were recorded with 39,196 tons of cargo, loaded and 49,505 unloaded.

(c) Road Transportation

Since there is no railway system on the island, all heavy transport is moved by road.

St. Vincent had 153 miles of Class I roads in 1964 and 192 of Class II with a total of 552 miles of roads (all types).

The number of motor vehicles registered at the end of 1965 was 2,494 or 28.2 per 1,000 people. Private cars and taxis accounted for 54% of the total but the number of taxis dropped from 189 in 1964 to 162 in 1965.

(d) Rail Transportation

There is no railway on the island.

(e) Communications

There are 35 Post Offices, 11 of which are Money Order and Parcel Offices.

The telephone service, owned and operated by the Government, includes radiotelephone communication with St. Vincent, Grenadines, had 375 subscribers in 1964, and connects Colliagua, Georgetown, Barrouallie and Mesopotamia through district exchanges. The service provides call office facilities from the various post offices throughout the island.

Cable and Wireless (West Indies Ltd.), provide overseas communication via cable system and wireless telegraph, while radiotelephone services connect with other West Indies points, Canada, and other countries.

There is a Government radio station (WIBS).

6. LABOUR

In 1961, 62% of the labour force was employed in agriculture.

Some 1964 wage rates were:

Agricultural Labourers (Male)	-	\$ 1.12 per day
Agricultural Labourers (Female)	-	\$ 0.92 per day
Domestic Workers	-	\$13.40 per month
Carpenters & Electricians	-	\$ 1.34 per day.

7. LOCAL LAWS AND REGULATIONS

(a) Health Regulations and Services

Health regulations are similar to those of St. Lucia.

At the end of 1964 there were 14 doctors registered on the island and 471 hospital beds. There is a Government hospital in Kingstown, attended by surgeons and physicians. Qualified doctors and dentists render efficient island-wide service privately and as government officers.

St. Vincent is free of small pox, malaria, yellow fever and typhoid and is known to be one of the healthiest islands in the Caribbean.

(b) Immigration Regulations

These are similar to those for St. Lucia.

8. CONSTRUCTION EQUIPMENT

For information on construction equipment see St. Lucia.

9. CONSTRUCTION MATERIALS AND SERVICES

For information on construction materials see St. Lucia.

The electricity service is owned and operated by the St. Vincent Electricity Service. The system consists of 3 power stations: Colonarie Hydro (700KW), Kingstown Diesel (316KW) and Richmond Hydro (1,100KW), which are linked by 11,000 volt transmission lines covering the island from Richmond through Kingstown to Georgetown. Current is supplied at 400V, 3 phase 50 cycles for industrial purposes and 220/30 V, 50 cycles for domestic purposes. 7,203,000 KWH were generated in 1964 to a total of 5,392 consumers.

GRENADA

1. GEOGRAPHY

Grenada is the most southerly island of the Windward group lying 68 miles south-south-west of St. Vincent and about 90 miles north of Trinidad. It is about 21 miles in length, 12 miles at its greatest breadth for a total area of about 120 square miles.

2. CLIMATE

Grenada has a tropical marine type of climate with an average annual temperature of 82°F in the low country, the lowest temperatures being recorded between November and January.

Average rainfall is 75 inches yearly with a maximum of 164 inches at Grand Etang and a minimum of 40 inches on the south coast. The rainy season lasts from June to December with November as the wettest month. The prevailing north-east trade winds blow right across the highlands and there is no rain-shadow area as such.

Grenada lies south of the normal track of hurricanes although it was struck by one in 1955.

3. SOILS AND GEOLOGY

Apart from a small area of limestone in the north, the island is wholly mountainous and of comparatively recent volcanic formation, overlying sedimentary shales of an earlier geological period and covered by rich volcanic soils. Outcrops of shale appear at numerous points on the island with the largest outcrop at Levera. Red and grey sandstone, hornblende and argillaceous schists are found in the mountains; porphyry and basaltic rocks also occur.

The volcanoes that formed Grenada produced mainly ash and agglomerate or breccia but little lava. There have been many changes in both land and sea levels and thus limestones occur in a few small outcrops. In geologically recent times the north-east portion has risen slightly and the south has sunk, producing the typical indented coast line extending from Point Salines to Hope.

Grenada is thickly wooded and abounds in streams. The main mountain mass which lies in the centre of the island consists of a number of ridges some of which contain crater basins, and one large crater lake, Grand Etang. Close to the north-east coast there are two other crater lakes, Lake

Antoine and Levera Pond. The highest peak is Mt. St. Catherine at 2,756 feet above sea level. The south coast is very rugged and deeply indented and the west coast is steeper than the east.

4. ECONOMY

(a) Population

1964 population figures show 94,249 people, increase of 2.2% over 1963.

(b) Factors Influencing the Economy of the Island

Agriculture is the main industry of Grenada. Some of the important features of the local agriculture are crop diversification, a large number of small holdings devoted to peasant agriculture and the mixing of crops in the field.

Cocoa, nutmeg-mace and bananas are the chief crops grown for export. Other important crops are: sugar cane, coconuts and citrus (mainly limes). Bananas have become a major crop since 1955 and in 1965 some 4,200 acres were under cultivation producing 21.1 tons of bananas for an export value of \$1,610,000.

Cocoa is cultivated on some 17,000 acres and is most successful in areas of 70 - 130 inches yearly rainfall. 1964 production figures show 2,370 tons of cocoa produced, by far the highest in the islands.

Nutmeg is planted on some 6,500 acres and all produce is exported. 1962 figures are:

Nutmeg	-	715 tons
Mace	-	120 tons
Nutmeg Oil	-	12.6 tons
Total Value	-	\$ 1,250,000.

There has been a steady decrease in export prices of nutmeg products and this has produced a sharp fall in the dollar value of the industry.

In 1964 total exports were valued at \$4,740,000 compared to \$11,900,000 worth of imports, an imbalance of more than 2 : 1 in favour of imports.

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Tourism seems to be expanding rapidly with an average increase in visitors of 22% per annum between 1962 and 1966, and 1965 tourist expenditures of \$3.2 million, second only to Antigua among the Windward and Leeward Islands.

(c) Budget

1964 government operational expenditures amounted to \$5,150,000; 12.9% for Public Works, 15.5% for health and social services, 17.0% for education and only 4.3% for agriculture.

Revenue for 1964 was \$5,650,000 with 81.2% from local sources, 15.1% from grant-in-aid sources and 3.4% from Colonial Development and Welfare Grants.

(d) Gross Domestic Product

In 1964, G.D.P. at factor cost was \$20.0 million which amounted to \$212 per capita. This was an increase of 1.7% over 1963, however, G.D.P. per capita decreased by 0.6%.

(e) Taxation

1964 local revenue was divided as follows:

Import Duty	-	31.5 %
Other Customs Duties	-	19.5 %
Income Tax	-	16.8 %
Other Inland Revenue	-	7.4 %
Other True Revenue	-	20.9 %
Other Revenue	-	3.9 %
TOTAL		\$ 4,580,000.

Company income tax rate is 40% and double income tax relief applies to all countries having Double Taxation Convention Agreements with the U.K.

(f) Currency and Banking

These are similar to St. Lucia.

5. TRANSPORTATION

(a) Air Transportation

Pearls Airport is located at the north-eastern corner of Grenada. B.W.I.A. operate a service with 36 arrivals a week, linking Grenada with other West Indian islands. In 1964 there were 1,226 aircraft landings, 1,003 of which were scheduled flights. There were 13,618 arrivals by air in 1964 and 13,842 departures for a total of 71% of all travellers.

(b) Sea Transportation

St. George's harbour at the south west of the island is Grenada's chief port. Its outer harbour is an open roadstead 5 - 10 fathoms deep, with a sand bottom forming a good holding ground. The inner harbour or carenage is a well sheltered natural harbour located between Fort George Point and a point about a quarter of a mile to the south-east. Berths for two ocean-going vessels with length of 400 - 500 feet are available on the eastern side of the inner harbour alongside an 800 feet long pier, with a minimum depth of 30 feet alongside. Berths for small craft are available on the western side of the carenage and also along 400 feet on the eastern face of the pier. Entrance to the inner harbour is through a channel with minimum width of 600 feet and minimum depth of 45 feet, both the channel and entrance being marked with buoys and leading marks located on shore lead to the pier. The turning basin in the inner harbour is 900 feet by 600 feet approximately. No tugs are available or necessary. Pilotage is not compulsory but advisable and pilots are available upon prior notice. There is a transit shed on the wharf and while cargo is usually handled by ships' gear, two 6 ton mobile cranes are available. Lighters with a total capacity of 350 tons are also available. Bunker oil is not available except a light diesel oil for small craft. The Port and Marine Department of the Government of Grenada is the authority controlling the ports, the principle officer being the Harbour Master. Principle commodities handled are imports of motor vehicles, petroleum products, building material, general cargo and exports of cocoa, nutmegs, spices and bananas.

Shipping lines using the port include Harrison, Booth, American Defence, Royal Netherlands, Saguenay, Geest, Grimaldi Siosa, West Indies Shipping Service.

During 1964, Grenada reported 440 freighters over 500 tons, 39 oil tankers and 522 motor vehicles of 500 gross tons. Cargo loaded was 20,561 tons and cargo discharged was 74,720 tons.

(c) Road Transportation

The scheduled road mileage is 479, of which 234 miles are surfaced and 215 miles are graded as third and fourth class roads. All the first and second class roads and practically all the third and fourth-class roads are suitable for motoring traffic.

There are no rail or tram services, but private bus passenger services operate along the eastern and western coast roads connecting with St. Georges. Taxis are available throughout the island. There were 3,165 vehicles registered at the end of 1965. Driving licences are necessary and visitors who hold valid driving permits are accorded visitors licences.

(d) Rail Transportation

There is no railway on the island.

(e) Communications

In addition to the General Post Office there are six District Post Offices which carry all sections of postal work and thirty-three Postal Agencies for receipt and delivery of ordinary mails and the sale of postage stamps. Cable and Wireless (West Indies) Ltd., operate on behalf of Government, the government owned telephone service. There are seven fully automatic exchanges connected by trunk lines. Total subscribers are 1,205 (as at December 31, 1962). Rates are \$40 per annum for residence subscribers and \$64 per annum for business subscribers. Call units in excess of a free allowance are charged extra, and in addition a mileage rate applies to subscribers over 1½ miles from the exchange centre. Cable and Wireless (West Indies) Ltd., operate cable services to all parts of the world and radio-telephone services to most areas.

A broadcasting service for the Windward Islands was established from a grant from Development and Welfare funds. The studios and transmitters forming the main short-wave stations are situated in Grenada. There are medium-wave lowpower stations serving the towns and suburbs of Roseau in Dominica, Castries in St. Lucia and Kingstown in St. Vincent.

6. LABOUR

Most of the work force consists of agricultural workers.
Some 1964 wage rates were:

Agricultural Labourers (Male)	-	\$ 1.34 per day
Agricultural Labourers (Female)	-	\$ 1.13 per day
Domestic Workers	-	\$13.40 per month
Carpenters	-	\$ 2.67 - \$ 4.00 per day
Electricians	-	\$ 0.75 - \$ 0.87 per hour.

7. LOCAL LAWS AND REGULATIONS

(a) Health Regulations and Services

Health regulations are the same as those for St. Lucia.

In 1964 there were 32 doctors registered on Grenada and 623 hospital beds.

(b) Immigration Regulations

These are similar to the immigration regulations for St. Lucia.

8. CONSTRUCTION EQUIPMENT

See St. Lucia.

9. CONSTRUCTION MATERIALS AND SERVICES

For information on construction materials see St. Lucia.

Electricity is generated and distributed by Grenada Electricity Services Ltd., and is at 11,000 and 2,300 volts, 3 - phase, 50 cycles using a grounded system. An 11 KV transmission line runs from the Company's new power station at Queen's Park, St. Georges, over the Grand Etang route to Grenville, with electricity available to all points along the route. Electricity is supplied to consumers at 415 V, 3 - phase for power or 240 V, single-phase for power and light. 1964 power generated was 6,253,300 KWH to 3,881 consumers.

DOMINICA

1. GEOGRAPHY

Dominica is one of the Windward Islands and lies between the French islands of Guadeloupe and Martinique. It is 29 miles long and 16 miles broad with a total area of 289.5 square miles. The highest point on the island is Mt. Diablotin (4,661 feet).

2. CLIMATE

The dry season lasts from February to May with June to October being the wettest months with an average annual rainfall of 70 inches in the leeward coastal areas to 300 inches in the interior highlands. The island average is 113 inches. At sea level the temperature varies between 70 and 90 degrees F but in the mountains it frequently drops as low as 60 degrees F.

3. SOILS AND GEOLOGY

The island is of volcanic origin and is without metallic minerals of any consequence. The soil is volcanic and is rich and porous, having weathered in places to a red clay. The soil is easily eroded and there are frequent landslides after a heavy rain.

A range of high, forest-clad mountains runs north to south and is broken in the center by a plain drained by two rivers. Hot springs and boiling lakes testify to Dominica's volcanic origin.

Dominica possesses many rivers and thus lack of water is not a problem.

4. ECONOMY

(a) Population

In 1964 the population of Dominica was 65,901, a 3.2% increase over 1963.

(b) Conditions Influencing the Economy of the Island

The chief export crop is bananas with coconuts (copra), cocoa, vanilla and limes being the secondary exports.

In 1965, 50,000 tons of bananas were produced for an export with a value of \$3,770,000. 1,028 tons of copra were produced in 1964 and 300,000 lbs. of cocoa in 1963. Production of lime juice in 1961 was 1,717 gallons raw, 59,980 gallons concentrated, 110,462 gallons top pulp, 193,862 gallons clear and 3,342 gallons sweetened.

A survey of forest resources was undertaken in 1962 with the assistance of the Canadian Government. Approximately 70 square miles of forested land exists and potential production of timber is estimated at more than 470 million board feet (at a cutting rate of 10 million board feet per year, this should last about 40 years).

New industries are being encouraged to reduce the island's dependence on agriculture. Bay oil is exported and other small industries include the preparation of spices, the extraction of vanilla and the production of rum and tobacco.

As regards the tourist industry, Dominica lags behind the other islands. In 1965, tourist expenditures amounted to only \$350,000. Dominica has a correspondingly small number of hotels (110 in 1965) and the number of tourists in 1965 was only about 5,000, the lowest figure of all the islands.

The rates of imports to exports for Dominica was 1.5 : 1 in 1964 which indicates a closer balance of trade in that year for Dominica than for many of the other islands.

(c) Budget

1964 operational expenditures by the Dominican Government were \$3,820,000 with 19.2% for Public Works, 14.7% for health and social services, 14.9% for education and 7.2% for agriculture.

Total 1964 revenue for both capital and operational expenditures amounted to \$4,600,000 of which 68.6% came from local revenue, 12.0% from Colonial Development and Welfare Grants and 18.9% from grant-in-aid sources.

(d) Gross Domestic Product

G.D.P. at factor cost in 1964 was \$16,100,000, a figure of \$245 per capita. This represented a total increase over 1963 of \$1,600,000 (11%) and a per capita increase of \$17 (5%).

(e) Taxation

For 1964, distribution of tax revenue was as follows:

Import Duty	57.2%
Other Customs Duties	8.1%
Income Tax	10.3%
Other Inland Revenue	8.5%
Other Two Revenue	9.8%
Other Revenue	6.1%
TOTAL	\$ 3,165,000.

Double taxation relief applies to Canada, as with the other islands.

(f) Currency and Banking

These are the same as for St. Lucia.

5. TRANSPORTATION

(a) Air Transportation

The airfield at Melville Hall, 36 miles from Roseau in the north-east of the island can only be used during daylight. It is served by BWIA using Avro 748 aircraft, a total of 24 weekly operations. In 1964, 5,202 passengers arrived by air and 5,196 departed but in contrast to most of the other islands, these figures represent only 63% of all migrants.

(b) Sea Transportation

The port of Roseau is an open roadstead, with anchorage in from 6 to 8 fathoms of water and one cable off shore. The distance between depths of from 9 to 39 fathoms is only about 150 yards. Spring tides rise $1\frac{1}{2}$ feet. One jetty is 185 feet in length, with a depth at the end of 12 feet.

Prince Rupert's Bay at Portsmouth is the best harbour in the island. It has a timber jetty suitable for launch and lighter-carried traffic.

There is a coastal motor launch service three times a week between Roseau and Portsmouth.

Five coastal jetties have been constructed, at Colihaut, Salisbury, Batalie, Saufreere and Dublanc.

Boatmen convey passengers from ship to jetty.

Steamship services are provided by the French, Harrison, Royal Netherlands, Lamport and Holt, Saguenay Shipping Service, Geest Line, Booth American Shipping Corporation and the West Indies Shipping Service.

Sea traffic during 1964 accounted for 2,964 incoming passengers and 2,959 outgoing. 227 freighters grossing 500 tons or over were recorded in that year, with a total of 557 of all ships. Cargo loaded was 31,956 tons and cargo unloaded was 37,318 tons.

(c) Road Transportation

As there is no railway system all internal traffic is carried by road. There are 172 miles of bituminous roads and 110 miles of road with gravel, crushed stone or stabilized soil surface. 68 miles of earth roads graded and drained, and 362 miles of unimproved roads.

In 1965 there were 2,078 registered motor vehicles, a 30% increase over 1964, however, the number of taxis dropped by over 50% a further indication of the lagging tourist industry.

(d) Rail Transportation

There are no railways on Dominica.

(e) Communications

The postal system comprises a General Post Office in Roseau, two main offices at Portsmouth and Marigot, 20 District Offices in the principal villages and 24 Postal Agencies, most of which are connected with Roseau by motorable roads. The General Post Office and Branch Offices at Portsmouth and Marigot issue and pay money orders and British Postal Orders and operate a C.O.D. parcels service with Great Britain. These offices also conduct insurance and parcel post services.

In the town of Roseau, regular house deliveries are made daily. Mails to the out-districts in the north are conveyed by bus twice weekly.

Air mails are received daily and despatches are made three times per week via Barbados and Antigua. New York, London and Montreal are reached within three days. The banana ships continue to provide a regular service to and from Britain, the time taken in transmission being about 12 days either way.

The telephone system comprises seven Main Exchanges, namely Roseau, Portsmouth, Marigot, St. Joseph, Grand Bay, Vieille Case and Grand Fond and five sub-exchanges situated at Goodwill, Mahaut, Wesley, Castle Bruce and Colihaut with a total number of 717 subscribers.

Cable and Wireless (West Indies) Ltd., provides communication within the West Indies and to all parts of the world via their cable system and wireless telegraph station.

Radio-telephone services are operated with West Indian points, the United Kingdom, U.S.A., Canada and points in Europe, Australia, India, Kenya, Pakistan, Rhodesia, South Africa, Bahamas, Surinam, French Guiana and the French West Indian Islands.

6. LABOUR

1964 wage rates:

Agricultural Labourers (Male)	-	\$ 1.12 - \$ 1.60 per day
Agricultural Labourers (Female)	-	\$ 0.91 - \$ 1.12 per day
Domestic Workers	-	\$ 4.00 - \$ 6.70 per week
Carpenters	-	\$ 2.67 - \$ 4.00 per day
Electricians	-	\$ 2.67 - \$ 3.33 per day.

7. LOCAL LAWS AND REGULATIONS

(a) Health Regulations and Services

Health regulations are the same as those for St. Lucia.

The Princess Margaret Hospital is the centre of the curative medical service and has a T.B. ward attached. There are also cottage hospitals at Marigot and Grand Bay, and a number of children's health clinics. The total number of hospital beds available in 1964 was 383 with 11 doctors registered on the island.

(b) Immigration Regulations

They are similar to those already discussed for St. Lucia.

8. CONSTRUCTION EQUIPMENT

As for St. Lucia.

9. CONSTRUCTION MATERIALS AND SERVICES

Construction materials are similar to those listed for St. Lucia.

Electricity is supplied by a hydro-electric A.C. generating station owned and operated by the Colonial Development Corporation. This station contains three turbo-alternators of 230 KW each and two 265 KW diesel generators giving a total output of 1,490 KW which supply electricity for commercial and domestic use to the Capital town of Roseau and its suburbs. The power lines have been extended as far as Scotts Head in the south and Salisbury in the north. There are plans for further extensions in the near future. The Portsmouth area and Melville Hall Airfield are supplied by Government owned and operated diesel generating stations.

In 1964, 4,433,100 KWH were generated and the number of consumers was 4,038. The consumption per capita was 55 KWH.

ANTIGUA

1. GEOGRAPHY

Antigua is one of the Leeward Islands, lying just north of the French Island of Guadeloupe. The islands' 108 square miles are hilly, heavily forested in part, and indented with numerous coves. The shores are lined by reefs and shoals but there are many natural harbours. The island is mainly low lying, the highest hill, Boggy Peak (1,330 ft.) is in the south-west and is of volcanic origin. In the north and east the land is undulating and flat.

2. CLIMATE

Antigua has a mean monthly temperature of 78.5 degrees F with extremes of 60 degrees and 90 degrees F having been recorded. The average annual rainfall is 48 inches and rain occurs 206 days per year on the average (the maximum rainfall recorded in one day is 7.3 inches). There is never any fog on the island and gales occur on only about 2 days a year and thunder storms about 15. Winds blow mainly from the east at between 5 and 20 knots although sometimes reaching velocities of up to 30 knots.

3. SOILS AND GEOLOGY

Antigua was formed from coral limestone. The north and east are composed of calcareous marls and coarse sandstone while the central portion is of clay formation. An absence of mountains and a thorough deforestation distinguish Antigua from the other Leeward Islands.

Antigua is naturally divisible into three main physiographical regions of about equal areas: the volcanic region to the south-west, the central plain and limestone region to the north and north-east.

The volcanic region, south-west of a line joining Five Islands and Falmouth Harbour, is a rugged and mountainous district, bounded on the south and west by a narrow coastal plain and intersected by a number of small alluvial valleys.

The limestone region, north-east of a line joining Wetherell Point and Welboughly Bay, consists of a number of steep hills, between 300 and 400 feet in height, separated by small valleys and gently undulating areas. It is bounded on the south by a broken escarpment, rising in places to over 350 feet.

The central plain, lying between the limestone region and the volcanic district, consists of gently undulating country occasionally rising to over 500 feet.

4. ECONOMY

(a) Population

The 1964 population of Antigua was 60,322 with a 4% yearly increase.

(b) Conditions Influencing the Economy of the Island

Antigua is one of the few islands which still depends on the sugar industry as its major economic contributor but the sugar industry in Antigua is weak and its future extremely uncertain. The cause of difficulty is on the production side. The unevenly distributed rainfall and prolonged droughts provide an unfavourable environment for sugar cane production, tending to keep average yields very low. In the period 1940 - 1960 Antigua was among the lowest producers of sugar cane in the West Indies. The sugar cane factory on the island has been operating at a loss for some years and unless something can be done to improve production (such as irrigation on a large scale) the future of the sugar industry looks bleak.

Cotton is the other major product of Antigua and if mechanization can be satisfactorily instituted, considerable expansion will be possible, even to the extent of replacing sugar cane in drier areas.

Sugar production fluctuates from year to year due to changes in climatic severity but average figures are:

Sugar Cane - 17.5 tons/acre

Cotton - 0.5 tons/acre

Cotton is not affected by climate to the same extent as sugar. Production figures show:

Sugar	1955 - 1964	14,100 (1964)	-	31,900 (1957) tons
Lint	1954 - 1965	113,000 (1965)	-	1,363,000 (1958) lbs.

The figures show that production has fallen considerably over the above period. Export figures for 1964 show:

Sugar and Molasses	\$2,250,000	-	72.7% total exports
Cotton	\$ 139,000	-	4.4% total exports.

Tourism is more highly developed on Antigua than on any of the other islands, and is growing steadily. Estimated 1965 expenditures by visitors totalled \$8.7 million. There are more hotels on Antigua than on other islands and access by air is enhanced by the fact that Antigua possesses an international airport.

As on all the islands, trade is heavily imbalanced in favour of imports. On Antigua the ratio of import values to export values is about 5 : 1.

1964 imports - \$15.5 million

1964 exports - \$ 3.1 million.

(c) Budget

Government operational expenditures in 1964 were \$5,950,000 with 18.5% being for Public Works, 15.8% for health and social services, 10.0% for education and 7.7% for agriculture. Total revenue for 1964 was \$6,100,000 of which 97.9% was from local revenue and 0.8% from Colonial Development and Welfare sources.

(d) Gross Domestic Product

In 1964, G.D.P. at factor cost was \$16,700,000 or \$279 per capita. This represented an increase of \$185,000 over the previous year, corresponding to a 1963 - 1964 growth factor of 1.2%.

The average annual per capita income is \$360.

(e) Taxation

For 1964 the distribution of tax revenue was as follows:

Import Duty	33.3%
Other Customs Duties	2.4%
Income Tax	12.4%
Other Inland Revenue	10.7%
Other True Revenue	14.4%
Other Revenue	26.8%
TOTAL	\$5,950,000.

For income tax, the Pay-As-You-Earn system was introduced in 1960. The rate on a company's chargeable income is 40% but provision has been made for double taxation relief as regards Canada and a few other countries.

(f) Currency and Banking

These are the same as for St. Lucia.

5. TRANSPORTATION

(a) Air Transportation

Coolidge Airport, some 6 miles north-east of St. Johns was built by the U.S.A.F. and is now operated by the Antigua Government. It has two runways one of which is capable of handling international jet traffic. Coolidge Airport in 1964 recorded 8,916 total aircraft landings. 49,224 passengers landed and 55,740 departed with 114,897 stopping over. Air travel was by far the predominant mode of transportation, accounting for about 95% of all travellers.

(b) Sea Transportation

A deep water harbour is being constructed at St. Johns but until completion, the lighter system is still in effect. Cargo service from Canada is handled by Saguenay Shipping Ltd. who make a monthly call at St. Johns and who also offer a limited passenger service. Also, two U.S. lines maintain a monthly service and the Federal Maple and the Federal Palm run a passenger and cargo service between the islands. Communication with Britain is maintained by vessels of the Harrison and Royal Netherland lines with a regular monthly cargo service.

Principle commodities handled at St. Johns are sugar, cotton, foodstuffs, machinery and lumber. No freighters over 500 tons were recorded in 1964 but 45 oil tankers called at the port. 123,000 tons of cargo were discharged and 25,500 were loaded.

(c) Road Transportation

At the end of 1965 there were 4,080 motor vehicles registered in Antigua representing a figure of 74.3 vehicles per 1,000 of population. This figure includes all types of motor vehicle transportation with private cars and taxis accounting for 56% of the total. While the total number of vehicles per 1,000 of population in 1965 increased by 8.6% from 1964, the

number of taxis per 1,000 people increased by 13.5% which reflects the growth of the tourist industry.

Antigua had 81 miles of Class I roads and 70 miles of Class II roads at the end of 1965 for a total road mileage of 151 miles. The Public Works Department is responsible for maintenance.

Driving licences are necessary and 3 month temporary licences may be granted to visitors.

The public transportation service is run by private concessionaires.

(d) Rail Transportation

The railway covers about 50 miles of narrow gauge railway lines served by 15 locomotives. It is used to carry sugar cane to the Antigua Sugar Factory and sugar and molasses from the factory to the wharf for shipment.

(e) Communications

The Postal Department consists of the General Post Office in St. Johns, 11 sub-post Offices in country districts and one Branch Post Office on Barbuda. Cable and Wireless Limited maintain overseas wireless telegraphy and radio telephone services. The company also operates a radio station on Clare Hall.

A broadcasting service, the Antigua Broadcasting Service, has been in operation since 1956.

One newspaper, the Antigua Star is published bi-weekly.

6. LABOUR

The labour force on Antigua is mainly agricultural, and constitutes one third of the islands total population.

Agricultural labourers in 1964 earned from \$0.27 to \$0.30 per hour for males and from \$0.13 to \$0.20 per hour for females. Domestic help received from \$4.70 to \$6.70 per week.

Skilled workers such as carpenters and electricians were paid in the neighbourhood of \$0.43 to \$0.50 per hour, these being the prevailing rate for government employees which in general runs slightly lower than that paid by private companies.

Except in the case of agricultural labourers, all wage rates are subject to a wide range of fluctuation.

7. LOCAL LAWS AND REGULATIONS

(a) Health Regulations and Services

Health regulations are the same as those for St. Lucia.

The Medical Service is based on part-time government officers with the privilege of private practice. Specialist services are available in surgery, ophthalmology, psychiatry and radiology. There is a general hospital with 180 beds, an old-peoples home with 150 beds, a mental hospital with 200 beds and a leper home with accommodation for 40 patients. In addition, there are 16 dispensaries on the island where out-patients average about 50,000 a year. At present, one dental officer is employed part-time.

(b) Immigration Regulations

These are similar to those already discussed for St. Lucia.

8. CONSTRUCTION EQUIPMENT

The same as for St. Lucia.

9. CONSTRUCTION MATERIALS AND SERVICES

For information on construction materials see St. Lucia.

The Public Electricity Supply is owned by the Government of Antigua. Two diesel-electric power stations were installed at Coolidge by the U.S. during the war and the combined capacity was 900 KW at 2,300 V, 3 phase, 60 cycles. Subsequently a new power station was constructed at Cassada Gardens with two new diesel-electric groups, each having a capacity of 1,080 KW. They generate 6,600 V, 3 phase, 60 cycles. A third diesel-electric set was installed during 1961 and it is eventually proposed to operate at 11,000 V. During 1964, the total electric power generated was 11,624,000 KWH distributed among 5,467 consumers.

ST. CHRISTOPHER
(ST. KITTS)

1. GEOGRAPHY

St. Christopher is one of the Leeward Islands, lying to the northwest of Antigua.

The total area of the island is 65 square miles, and the total length is 23 miles. The capital, Basseterre, is situated on the west side of the island.

2. CLIMATE

The climate is relatively cool and dry with temperature ranging from 78 to 85 degrees F. The average annual rainfall during 1956 - 1959 was 55 inches.

3. SOILS AND GEOLOGY

St. Christopher is in the form of a long oval with a narrow neck of land projecting from the southeast end. Mountains traverse the central part of the island from northwest to southeast, the highest point being Mt. Misery (3,792 feet), an extinct volcano.

St. Christopher is of volcanic origin and is, therefore, composed of igneous rock overlain by tuff and rich, fertile soil. The rim of land formed by the skirts of the mountains and the valley of Basseterre is suitable for cultivation. Dense woods cover the summits of the hills and the higher slopes afford pasturage. The island is well supplied with fresh water.

4. ECONOMY

(a) Population

The population of St. Christopher alone in 1960 was 38,291. The 1964 population figures for St. Christopher, Nevis and Anguilla show a total population of 59,303 with a birth rate of 32 per 1,000 and a death rate of 9. Death rates, and especially infant mortality rates, are declining and the birth rate, while decreasing at a much slower rate, is nevertheless also on the decline.

The numbers leaving the islands as immigrants have decreased from 2,299 in 1961 to only 774 in 1964.

(b) Conditions Influencing the Economy of the Island

The chief agricultural product of St. Christopher is still sugar, with Sea Island cotton next in importance. 1965 figures for St. Christopher - Nevis show:

Sugar	-	47,000 tons
Lint	-	64 tons.

In 1964 sugar accounted for 93% of the total value of exports (\$6,650,000) for St. Christopher - Nevis - Anguilla.

The imbalance of trade is heavily in favour of imports and this discrepancy has been growing.

The number of tourists visiting St. Christopher has not changed greatly in the last few years. Figures for St. Christopher - Nevis - Anguilla show:

1963	-	6,403
1964	-	6,561
1965	-	about 7,000.

Some industries located on St. Christopher are:

- 1 Sugar Factory
- 1 Cornmeal Factory
- 1 Brewery
- 1 Cigarette Factory.

(c) Budget

1964 Government operating expenditures for St. Christopher - Nevis - Anguilla were \$3,820,000 with 7.3% for Public Works, 14.5% for health and social services, 17.0% for education and 3.9% for agriculture.

Total revenue for the same year was \$4,450,000, 83.5% of which came from local revenue.

(d) Gross Domestic Product

In 1964, G.D.P. at factor cost was \$14,000,000; \$236 per capita. This was an increase ($4\frac{1}{2}\%$) over 1963 when the G.D.P. was \$13,500,000.

(e) Taxation

1964 tax revenue was distributed in the following manner:

Import Duty	31.0%
Other Customs Duties	6.9%
Income Tax	23.1%
Other Island Revenue	9.0%
Other True Revenue	8.0%
Other Revenue	22.0%
TOTAL	\$ 3,720,000.

In the case of Canada, the U.K., New Zealand, Sweden and Denmark, provision has been made for double taxation relief.

(f) Currency and Banking

These are the same as for St. Lucia.

5. TRANSPORTATION

(a) Air Transportation

Golden Rock Airport was extended to 5,700 ft. in 1961 and at present is capable of handling Convair 640 aircraft. British West Indian Airways operate 20 Avro 748 flights a week out of Golden Rock, both to and from Antigua and St. Thomas. Daily service is provided by Leeward Islands Air Transport using twin bonanza aircraft and K.L.M. provide an air connection to St. Christopher.

In 1964 the airport recorded 3,500 aircraft landings, 2,751 of which were scheduled flights. Passenger arrivals numbered 12,591 while departures were 12,613 with 12,290 stop-overs or temporary halts. Air transport accounted for 75% of all travellers.

(b) Sea Transportation

The roadstead at Basseterre is open and approachable. There are two piers, the east pier being equipped with mobile cranes. Steamship services are provided by the Saguenay Terminals West Indies shipping service and 7 other steamship lines and a motor boat service in operation between St. Christopher and Nevis.

152 freighters grossing over 500 tons each were recorded at Basseterre in 1964, as well as 29 oil tankers. 55,537 tons of cargo were discharged and 45,502 were loaded.

(c) Road Transportation

There are about 11 miles of streets in Basseterre and a further 49 miles of roads in and around the island, and a road linking Basseterre to Frigate Bay was being contemplated in 1964. Over 1,600 motor vehicles of all types were registered on St. Christopher in 1964.

1965 figures for St. Christopher - Nevis - Anguilla show 2,058 motor vehicles registered, or 33.2 vehicles per 1,000 population. Private cars account for 57% and taxis 5.8% of the total. The numbers of cars and taxis increased very little between 1964 and 1965.

(d) Rail Transportation

The railway system for transporting cane from the estates circles the island.

(e) Communications

Postal facilities are provided at 5 Post Offices on St. Christopher two of which, Basseterre G.P.O. and Sandy Point, are money order offices. There is a government telephone system on the island which is completely automatic and the exchange, which was completed in 1963, has a capacity of 2,000 lines.

Cable and Wireless (West Indies) Ltd., provide communication within the West Indies and to all parts of the world by cable and telegraph. Radio-telephone services are operated to West Indian points as well as Canada, the U.K. and the U.S.

The government broadcasting station (ZIZ) has been in operation since 1961 at 660 watts output for 5½ hours a day.

6. LABOUR

1964 earnings were:

Male Agricultural Labourers	-	\$2.03 per day
Female Agricultural Labourers	-	\$1.45 per day
Domestic Workers	-	\$4.00 - \$10.00 per week
Carpenters and Electricians	-	\$0.40 - \$0.43 per hour.

7. LOCAL LAWS AND REGULATIONS

(a) Health Regulations and Services

Health regulations are the same as those for St. Lucia.

There are 15 doctors registered in St. Christopher - Nevis - Anguilla and a total of 216 hospital beds (excluding institutions).

(b) Immigration Regulations

These are similar to those for St. Lucia.

8. CONSTRUCTION EQUIPMENT

Similar to that available on St. Lucia.

9. CONSTRUCTION MATERIALS AND SERVICES

Construction materials are similar to those outlined for St. Lucia.

There is a Government-owned electricity station. The town of Basseterre and several country districts are completely lighted by this A.C. plant and declared voltage to consumers is 230V, single phase, 2 wire, and 400V, 3 phase 3 or 4 wire (60 cycles). In 1964 the total electric power generated was 5,862,000 KWH to 4,997 consumers.

MONTSERRAT

1. GEOGRAPHY

Situated some 27 miles southwest of Antigua, the island of Montserrat is about 11 miles in length and 7 miles wide in the broadest parts with a land area of 32.5 square miles.

2. CLIMATE

The average temperature is 81 degrees F and average rainfall is 62 inches per year. Fresh water is plentiful.

3. SOILS AND GEOLOGY

Montserrat is of volcanic origin and is very rugged and mountainous, its highest elevation being Chance Mountain (3,000 feet), one of three main hill masses. There is an active volcano, Soufriere, on the island.

The soils are very light.

4. ECONOMY

(a) Population

The population of Montserrat in 1964 was 14,017, a 2.4% increase over 1963.

(b) Factors Influencing the Economy of the Island

Of the islands 32.5 square miles, approximately 11,700 acres are agricultural land, 5,500 of which are classed as suitable for cultivation.

Soil erosion is a problem due to the very light soils and the hilly nature of most of the land under cultivation. Water supply is generally good but in the dry months there are periods of low pressure in connection with the pipe-borne water to the Northern District.

The main export crops are cotton and bananas but tomatoes, carrots, sugar cane and limes are also grown.

The production of sea island cotton is subject to fluctuations but the coastland variety has been showing good results. Figures for lint production, however, show that the general trend is downward from 414,000 lbs. in 1958 to 134,000 lbs. in 1965 with a few intermediate fluctuations.

The lime orchards have suffered serious depletion through blight and scale diseases with a resulting drop in production during recent years. The diseases are being combated, however, and increased production is anticipated. 1962 exports were 4,000 lbs. of fresh limes and 25,000 gallons of juice.

For a number of years, Montserrat enjoyed a useful vegetable export trade but recently serious shipping difficulties have resulted in a decrease in production. The increased use of air transport is to some extent offsetting shipping difficulties. In 1962, fruit and vegetable exports brought in \$7,400.

Tourism is expanding on Montserrat, with a total of 160 hotel and guest houses in 1965, a 30% increase over 1964. Visitors in 1965 were estimated at 6,500 (an 80% increase over 1964) and tourist expenditures amounted to some \$67,000.

As with the other islands, the value of imports far outweighs the value of exports.

1964 imports	\$ 2,700,000
1964 exports	\$ 219,000.

The Department of Agriculture operates one cotton ginnery and two small sugar mills. There is also a rum distillery, a lime equelling plant and a tomato-processing plant.

(c) Budget

Government operational expenditures in 1964 amounted to \$106 per capita (the highest of all the islands) for a total of \$1,490,000. 14.6% was spent on education, 11.7% on health and social service, 9.4% for Public Works and 8.6% for agriculture.

These expenditures, along with the various capital expenditures, were financed by revenue totalling \$1,700,000; 48.8% from local revenue, 4.3% from Colonial Development and Welfare grants and 45.5% from grant-in-aid sources.

(d) Gross Domestic Product

G.D.P. at factor cost was \$3.0 million in 1964, a 20% increase over the previous year. Per capita figures show \$217 in 1964 and \$189 in 1963 for a 15% real economic increase.

(e) Taxation

1964 local revenue was collected as follows:

Import Duty	36.3%
Other Customs Duties	1.1%
Income Tax	7.3%
Other Inland Revenue	4.9%
Other True Revenue	11.2%
Other Revenue	39.2%
TOTAL	\$825,000

Company tax is 33 1/3 % and double income tax relief applies to Canada among other countries.

(f) Currency and Banking

These are similar to conditions for St. Lucia.

5. TRANSPORTATION

(a) Air Transportation

Blackburne Airfield is located on the east coast of the island and is serviced regularly by LIAT with 21 weekly flights using Beechcraft Twin Bonanza aircraft.

About three quarters of all travellers in 1964 used air transport.

(b) Sea Transportation

Plymouth, the only port of entry, is an open roadstead, facing the southwest between Bransby Point and Kinsale, in which the depth increases rapidly from the shore.

Steamship services are provided by the West Indies Shipping and Harrison lines. The m/v "Rippon" plies between the islands offering freight and passenger accommodation.

In 1964 Montserrat recorded 13 freighters over 500 gross tons and 215 motor vessels grossing 500 tons. The total number of ships was 564.

Cargo loaded in 1964 was 525 tons and 12,632 tons were discharged.

(c) Road Transportation

There are 118 miles of road open for traffic of which 60 are main roads suitable for motor traffic. At the end of 1965, 626 motor vehicles were registered (39 per 1,000 population) with a substantial increase in the numbers of taxis and trucks.

(d) Rail Transportation

There is no railway on the island.

(e) Communications

The General Post Office is at Plymouth, and there are also sub-offices at Harris, Cudjoe Head, Salem, St. John's, St. Peter's, St. Patrick's and Bethel.

There is a local telephone service at Plymouth with trunk lines to all principal villages. The service is Government-owned.

Cable and Wireless (West Indies) Ltd., owns and operates a wireless telegraph station with services to several points in the West Indies, and thence to all parts of the world through the cable system of Cable and Wireless Ltd. The station also communicates with ships at sea.

Radio-telephone services are operated with West Indian points, the United Kingdom, U.S.A., Canada and points in Europe.

A small broadcasting station owned by the Government operates every night (except Sunday night) on a frequency of 1,550 kcs.

6. LABOUR

Some 1964 wage rates were:

Agricultural Labourers (Male)	-	\$ 1.10 per day
Agricultural Labourers (Female)	-	\$ 0.90 per day
Domestic Workers	-	\$16.00 per month
Carpenters and Electricians	-	\$ 3.50 - \$ 3.85 per day.

Wage rates are generally subject to wide ranges of fluctuation.

7. LOCAL LAWS AND REGULATIONS

(a) Health Regulations and Services

Health regulations are the same as those for St. Lucia.

In 1964 there were only 3 registered doctors on the island and 69 hospital beds giving the third highest population-to-doctor and population-to-hospital bed ratios among the islands.

(b) Immigration Regulations

These are similar to the regulations governing immigration to St. Lucia.

8. CONSTRUCTION EQUIPMENT

As for St. Lucia.

9. CONSTRUCTION MATERIALS AND SERVICES

Information on construction materials is similar to that given for St. Lucia.

Montserrat has little electrical service. In 1964 only 985,000 KWH were generated, maximum capacity being only 985 KW. The total number of consumers in that year was 864.

NEVIS

Nevis is a volcanic island, conical in shape and rising some 3,500 feet, which lies about 2 miles off the southern tip of St. Christopher. The island is 36 square miles in area and 7 miles across with a 1960 population of about 13,000, mainly centered in the town of Charleston and the District of Gingerland on the southeast coast of the island. Magnificent beaches characterize the west and north coast lines.

The climate is similar to that enjoyed by St. Christopher.

The upper slopes of Mount Nevis are well wooded while on the lower slopes many small farmers cultivate sea island cotton, sugar cane, food crops and vegetables. Cotton is the main export with 958 acres of cultivation producing 264 bales of lint (105,600 lbs.) for export in 1961 - 62. Subsidiary industries are the production of livestock, copra and ground provisions and there is some fishing. The only real industry on the island is the Cotton Ginnery now producing some 500 bales of sea island cotton a year.

Considerable steps have been taken in recent years to expand the tourist industry for which the island is admirable suited. Two small luxury hotels exist and a number of residences are being constructed by North American visitors.

Nevis is linked to St. Christopher by a daily motor launch service and by the Leeward islands Air Transport with 16 twin bonanza flights per week, 6 of which connect with Antigua.

There are 63 miles of roads on Nevis.

Charlestown is an open and approachable roadstead facing west with good anchorage in 8 or 9 fathoms. There is a government pier equipped with one 6 ton crane; a further jetty was completed during 1961.

A postal and money order office is located at Charlestown and a government telephone system is installed on the island.

BARBUDA

Barbuda is a small island some 25 miles north of Antigua with Codrington as its only town, and a total population of about 1,145 in 1960. It was for some time part of the electoral district of St. John's, but is now represented on the Legislation Council of Antigua.

Barbuda is a flat coral island rising to 143 feet at its highest point. It is 62 square miles in area, well wooded with a large lagoon on the west side where Codrington is located. Climatic conditions are the same as for Antigua.

Fishing is the principle industry, other than Bettys Hops sugar estates, but efforts are being made to promote tourism which appears to have good potential as a growth industry. There is a government stock farm on Barbuda and the island has long been used as a game reserve.

Barbuda possesses an airfield with a 1,500 ft. runway presently accommodating a bi-weekly service by twin bonanza aircraft of the Leeward Islands Air Transport service. There is also a 3,000 foot privately owned grass strip on the island.

One top class hotel is already in operation on Barbuda and various other projects are taking shape.

BEQUIA

Bequia with an area of about 6 square miles, is one of the largest islands in the Grenadines, a group of small islands lying between St. Vincent and Grenada.

The island is only slightly cultivated due to a lack of fresh water. Admiralty Bay, on the west side of Bequia, provides a safe and commodious harbour. 1962 statistics are:

Inter-colonial sailing and auxiliary vessels -

	<u>Number</u>	<u>Net Tonnage</u>	<u>Passengers</u>
Entered	66	3,256	10
Cleared	73	3,987	3.

Bequia is administered by St. Vincent. In 1960 Bequia, along with Mustique, Canouan, Magrean, Union and associated islands had a total population of 5,068. From these figures an estimated present population figure for Bequia would be in the neighbourhood of 2,500.

There is no airport on the island.

CARRIACOU

Carriacou, 20 miles to the north of Grenada, is the largest of the Grenadines. It is 7 miles long by 2 miles wide and 13 square miles in area. A ridge of hills, rising to an altitude of 980 feet, runs across the island from northeast to southwest. The average annual rainfall is only 40 inches.

Carriacou is administered by Grenada. The island is densely populated, the 1961 population being 6,958.

Cotton and cattle are the chief exports and the native peasants occupy small lots and work under the "metayage" system (a system of land tenure under which the cultivator and his family work the land which they premanently occupy but which does not belong to them; the owner receives payment of rent "in kind"). The cotton ginnery on Carriacou is operated by the Grenada Government and most of the lint produced is sold to Trinidad. 1958 - 1962 export figures are:

1958	-	121,000 lbs.
1959	-	95,000 lbs.
1960	-	144,000 lbs.
1961	-	130,000 lbs.
1962	-	189,000 lbs.

The crop of 1,500 acres is exclusively a peasant undertaking.

The natural beauty of the island makes it a potential tourist attraction but since no airport exists (although a 3,000 ft. airstrip has been designed with U.K. assistance for a site at Lauriston with possibilities of extension to 6,000 ft.), it has so far been hard to capitalize on this natural attribute.

There are two good harbours on the west coast, Hillsborough Bay on which stands Hillsborough, the chief town, and Tyrell Bay farther to the south. Both are mostly used by small craft. Communication between Grenada and Carriacou is by twice weekly mail schooner, a journey of some 4 to 5 hours.

Carriacou maintains a government owned and operated Cable/Wireless link, with connects with Cable and Wireless Ltd., on Grenada hourly.

ANGUILLA

The Island of Anguilla lies about 69 miles northwest of St. Christopher. Its 34 square miles of total area are comparatively devoid of the usual tropical vegetation found on most of the islands and there are no rivers or mountains. Anguilla, however, does have some of the best beaches in the West Indies which are a great potential tourist attraction.

Anguilla produces small quantities of food crops and considerable numbers of sheep and goats. Fishing is an important industry on the island, but sea island cotton is the main export. In 1961 - 62, from a growing area of 21 acres, Anguilla produced 6 bales of lint for export (2,400 lbs).

Anguilla is served by the Leeward Islands Air Transport Service who operate 2 scheduled flights per day, 4 days a week, using twin bonanza 6 passenger aircraft.

There is a government telephone system on Anguilla which also has a money order office.

Two hotels are located on the island with a total of 15 rooms.

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